Objectives: Student will be able to:

**Illustrate the replication of DNA by using a Flow Map.**

**Key Terms:**

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| • asexual reproduction: binary fission,  budding, vegetative  • chromosome number, abnormalities  • DNA, replication, mRNA, tRNA,  rRNA  • DNA: storage of genetic information  • dominant/recessive traits,  heterozygous, homozygous, alleles  • fertilization: zygote  • gene  • mitosis  • meiosis: gametes, crossing over,  gene combinations  • nitrogen bases  • pedigree  • phenotypes, genotypes  • prokaryote, eukaryote  • protein synthesis  • Punnett square, genetic cross,  monohybrid  • ribosomes  • sex-linked traits  • sexual reproduction: angiosperms,  mammals |
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**Evaluate the process of protein synthesis by performing a simulation and then write to explain protein synthesis.**

**Explain the process of mitosis by comparing the phases under a microscope and developing a written model with descriptors.**

**Explain the effects of crossing over on gene recombination by simulating crossing over and interpreting the results.**

**Analyze reproduction in angiosperms by dissecting a flower and creating a summary product such as Photostory.**

**Analyze the results of a monohybrid cross by determining the genotypic and phenotypic ratios from a Punnett Square.**

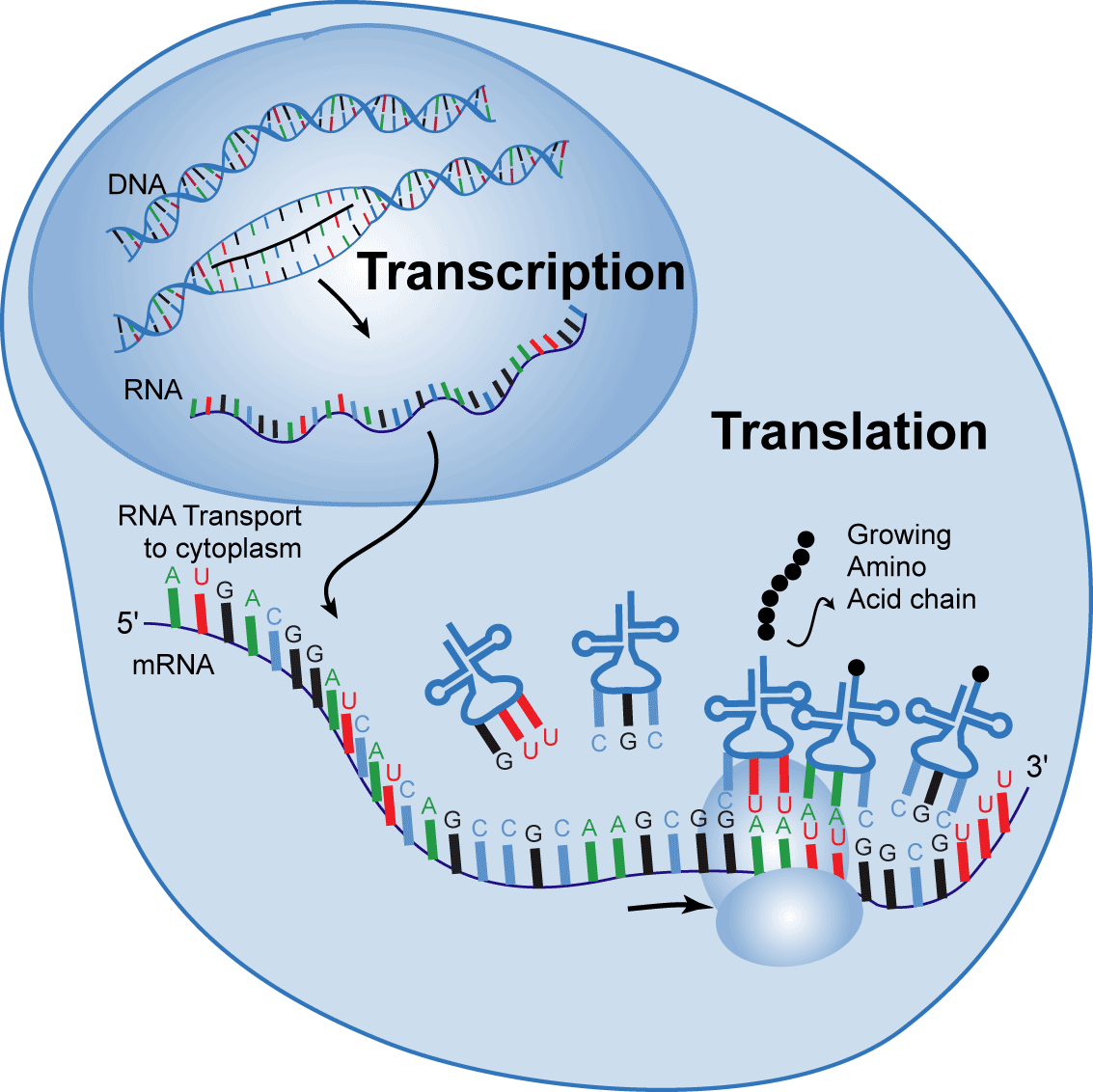
**Compare anaerobic and aerobic respiration by analyzing**

**lab data.**

**Design an experiment to investigate the inheritance of color in plants.**

**Collect and analyze evidence about a genetic disorder in order to explain the mystery.**

**Illustrate and explain how expressed traits are passed from parent to offspring by constructing and analyzing a human pedigree chart.**





Pertinent Information:

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| **“Big” Ideas** | The sequence of the bases in DNA determines the protein made during protein synthesis.  Sexual reproduction affects the variation among offspring.  Traits are inherited and passed on from one generation to the next. |
| **Essential Question** | ***How can we explain how genetic information is transmitted between parent and offspring after fertilization?***  ***How can we illustrate that characteristics of one generation of organisms are related to the next generation?*** |
| **Enduring Understanding** | DNA carries the genetic information for building proteins.  Mitosis is a cell process that replicates cells for growth and repair.  Organisms have a variety of strategies for asexual and sexual reproduction.  Meiosis produces sex cells containing half of the original number of chromosomes.  The possibility of inheriting a specific expression of a trait can be predicted.  Sex-linked traits appear more often in males. |

Notes: